

WHAT IS CLAIMED IS:

- 1 A light emitting device comprising:
a first, second, and third transistors, each comprising a source region, a drain
5 region, and a gate electrode;
an organic light emitting diode; and
a power supply line,
wherein source regions of the first and second transistors are connected to the
power supply line,
10 wherein the gate electrode of the first transistor is connected to the gate
electrode of the second transistor and to the drain region thereof;
wherein the source region of the third transistor is connected to the drain region
of the second transistor and the drain region of the third transistor is connected to a pixel
electrode of the organic light emitting diode,
15 wherein the first, second, and third transistors operate in a saturation range, and
wherein the drain region of the first transistor and a gate electrode of the third
transistor are connected to each other for a certain period in one frame period.
2. A light emitting device according to claim 1, wherein the first, second, and
20 third transistors have the same polarity.
3. An electronic equipment comprising the light emitting device according to
claim 1, wherein the electronic equipment is selected from the group consisting of an
organic light emitting diode display device, a digital still camera, a mobile computer, a
25 portable image reproduction apparatus, a goggle type display, a video camera, and a
portable telephone.
4. A light emitting device comprising:
a first, second, and third transistors, each comprising a source region, a drain
30 region, and a gate electrode;

an organic light emitting diode; and

a power supply line,

wherein the source regions of the first and second transistors are connected to the power supply line,

5 wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the drain region thereof,

wherein the source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode,

10 wherein the first, second, and third transistors operate in a saturation range,

wherein the drain region of the first transistor and the gate electrode of the third transistor are connected to each other for a certain period in one frame period, and

wherein the amount of drain current of the first transistor is controlled while the drain region of the first transistor and the gate electrode of the third transistor are connected to each other in order to control the luminance of the organic light emitting diode.

5. A light emitting device according to claim 4, wherein the first, second, and third transistors have the same polarity.

20

6. An electronic equipment comprising the light emitting device according to claim 4, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a

25 portable telephone.

7. A light emitting device comprising:

a first, second, and third transistor, each comprising a source region, a drain region, and a gate electrode;

30 an organic light emitting diode; and

Sub
X1
cmd.

REPORT

Sub
81
amp.

a power supply line,

wherein the source regions of the first and second transistors are connected to the power supply line,

wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the drain region thereof,

wherein the source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode,

wherein the first, second, and third transistors operate in a saturation range,

wherein the drain region of the first transistor and the gate electrode of the third transistor are connected to each other for a certain period in one frame period, and

wherein the amount of drain current of the first transistor is controlled by a video signal while the drain region of the first transistor and the gate electrode of the third transistor are connected to each other in order to control the luminance of the organic light emitting diode.

8. A light emitting device according to claim 7, wherein the first, second, and third transistors have the same polarity.

9. An electronic equipment comprising the light emitting device according to claim 7, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

10. A light emitting device comprising:

a first, second, third, fourth, and fifth transistors, each comprising a source region, a drain region, and a gate electrode;

an organic light emitting diode;

a power supply line;

1007760-022002

SUB
J1
CMD.

a signal line; and

a scanning line,

wherein the gate electrodes of the fourth and fifth transistors are connected to the scanning line,

5 wherein one of the source or drain regions of the fourth transistor is connected to the signal line and the other is connected to the drain region of the first transistor,

wherein one of the source or drain regions of the fifth transistor is connected to the signal line and the other is connected to the gate electrode of the third transistor,

10 wherein the source regions of the first and second transistors are connected to the power supply line,

wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the drain region thereof,

15 wherein the source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode, and

wherein the first, second, and third transistors operate in a saturation range.

20 11. A light emitting device according to claim 10, wherein the forth transistor and the fifth transistor have the same polarity.

12. A light emitting device according to claim 10, wherein the first, second, and third transistors have the same polarity.

25 13. An electronic equipment comprising the light emitting device according to claim 10, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

30 14. A light emitting device comprising:

*Sub
J1
comp.*

a first, second, third, fourth, and fifth transistors, each comprising a source region, a drain region, and a gate electrode;
 an organic light emitting diode;
 a power supply line;
 5 a signal line; and
 a scanning line,
 wherein the gate electrodes of the fourth and fifth transistors are connected to the scanning line,
 wherein one of the source or drain regions of the fourth transistor is connected
 10 to the signal line and the other is connected to the drain region of the first transistor,
 wherein one of the source or drain regions of the fifth transistor is connected to the signal line and the other is connected to the gate electrode of the third transistor,
 wherein the source regions of the first and second transistors are connected to the power supply line,
 15 wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the drain region thereof;
 wherein the source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode,
 20 wherein the first, second, and third transistors operate in a saturation range, and
 wherein the amount of drain current of the first transistor is controlled in order to control the luminance of the organic light emitting diode.

15. A light emitting device according to claim 14, wherein the forth transistor
 25 and the fifth transistor have the same polarity.

16. A light emitting device according to claim 14, wherein the first, second, and third transistors have the same polarity.

30 17. An electronic equipment comprising the light emitting device according to

claim 14, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

5

18. A light emitting device comprising:

a first, second, third, fourth, and fifth transistors, each comprising a source region, a drain region, and a gate electrode;

an organic light emitting diode;

10

a power supply line;

a signal line; and

a scanning line,

wherein the gate electrodes of the fourth and fifth transistors are connected to the scanning line,

15

wherein one of the source or drain regions of the fourth transistor is connected to the signal line and the other is connected to the drain region of the first transistor,

wherein one of the source or drain regions of the fifth transistor is connected to the signal line and the other is connected to a gate electrode of the third transistor,

20

wherein the source regions of the first and second transistors are connected to the power supply line,

wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the drain region thereof,

25

wherein the source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode,

wherein the first, second, and third transistors operate in a saturation range; and

wherein the amount of drain current of the first transistor is controlled by a video signal in order to control the luminance of the organic light emitting diode.

30

19. A light emitting device according to claim 18, wherein the forth transistor

9/18
2/11
cmp.

and the fifth transistor have the same polarity.

20. A light emitting device according to claim 18, wherein the first, second, and third transistors have the same polarity.

5

21. An electronic equipment comprising the light emitting device according to claim 18, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

10

22. A light emitting device comprising:

a first, second, third, fourth, fifth transistors, each comprising a source region, a drain region, and a gate electrode;

15

an organic light emitting diode;

a power supply line;

a signal line; and

a scanning line,

wherein the gate electrodes of the fourth and fifth transistors are connected to the scanning line;

20

wherein one of the source or drain regions of the fourth transistor is connected to the signal line and the other is connected to the drain region of the first transistor,

wherein one of the source or drain regions of the fifth transistor is connected to the drain region of the first transistor and the other is connected to the gate electrode of the third transistor,

25

wherein the source regions of the first and second transistors are connected to the power supply line,

wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the drain region thereof,

30

wherein the source region of the third transistor is connected to the drain region

Sub
CMD.

of the second transistor and the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode, and

wherein the first, second, and third transistors operate in a saturation range.

5 23. A light emitting device according to claim 22, wherein the forth transistor and the fifth transistor have the same polarity.

24. A light emitting device according to claim 22, wherein the first, second, and third transistors have the same polarity.

10

25. An electronic equipment comprising the light emitting device according to claim 22, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a
15 portable telephone.

26. A light emitting device comprising:

a first, second, third, fourth, fifth transistors, each comprising a source region, a drain region, and agate electrode;

20 an organic light emitting diode;

a power supply line;

a signal line; and

a scanning line,

25 wherein the gate electrodes of the fourth and fifth transistors are connected to the scanning line,

wherein one of the source or drain regions of the fourth transistor is connected to the signal line and the other is connected to the drain region of the first transistor,

30 wherein one of the source or drain regions of the fifth transistor is connected to the drain region of the first transistor and the other is connected to the gate electrode of the third transistor,

wherein the source regions of the first and second transistors are connected to the power supply line,

wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the drain region thereof,

5 wherein the source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode,

wherein the first, second, and third transistors operate in a saturation range, and

10 wherein the amount of drain current of the first transistor is controlled in order to control the luminance of the organic light emitting diode.

27. A light emitting device according to claim 26, wherein the forth transistor and the fifth transistor have the same polarity.

15 28. A light emitting device according to claim 26, wherein the first, second, and third transistors have the same polarity.

29. An electronic equipment comprising the light emitting device according to claim 26, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

30. A light emitting device comprising:
25 a first, second, third, fourth, fifth transistors, each comprising a source region, a drain region, and a gate electrode;
an organic light emitting diode;
a power supply line;
a signal line; and
30 a scanning line,

Sub
X1
amp.

wherein the gate electrodes of the fourth and fifth transistors are connected to the scanning line,

wherein one of the source or drain regions of the fourth transistor is connected to the signal line and the other is connected to the drain region of the first transistor,

5 wherein one of the source or drain regions of the fifth transistor is connected to the drain region of the first transistor and the other is connected to the gate electrode of the third transistor,

wherein the source regions of the first and second transistors are connected to the power supply line,

10 wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the drain region thereof;

wherein a source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode,

15 wherein the first, second, and third transistors operate in a saturation range, and

wherein the amount of drain current of the first transistor is controlled by a video signal in order to control the luminance of the organic light emitting diode.

31. A light emitting device according to claim 30, wherein the forth transistor
20 and the fifth transistor have the same polarity.

32. A light emitting device according to claim 30, wherein the first, second, and third transistors have the same polarity.

25 33. An electronic equipment comprising the light emitting device according to claim 30, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

30

claim 34, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

5

38. A light emitting device comprising:

a first, second, third, fourth, fifth transistors, each comprising a source region, a drain region, and a gate electrode;

an organic light emitting diode;

10

a power supply line;

a signal line; and

a scanning line,

wherein the gate electrodes of the fourth and fifth transistors are connected to the scanning line,

15

wherein one of the source or drain regions of the fourth transistor is connected to the signal line and the other is connected to the gate electrode of the third transistor,

wherein one of the source or drain regions of the fifth transistor is connected to the gate electrode of the third transistor and the other of which is connected to the drain region of the first transistor,

20

wherein the source regions of the first and second transistors are connected to the power supply line,

wherein the gate electrode of the first transistor is connected to a gate electrode of the second transistor and to the drain region thereof,

25 wherein the source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode,

wherein the first, second, and third transistors operate in a saturation range, and

wherein the amount of drain current of the first transistor is controlled in order to control the luminance of the organic light emitting diode.

30

Sub
AI comp.

2002220-09747001

200220 092200

Sub
Comp.

39. A light emitting device according to claim 38, wherein the forth transistor and the fifth transistor have the same polarity.

40. A light emitting device according to claim 38, wherein the first, second,
5 and third transistors have the same polarity.

41. An electronic equipment comprising the light emitting device according to claim 38, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a
10 portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

42. A light emitting device comprising:
a first, second, third, fourth, fifth transistors, each comprising a source region, a
15 drain region, and a gate electrode;
an organic light emitting diode;
a power supply line;
a signal line; and
a scanning line,
20 wherein the gate electrodes of the fourth and fifth transistors are connected to the scanning line,
wherein one of the source or drain regions of the fourth transistor is connected to the signal line and the other is connected to the gate electrode of the third transistor,
wherein one of the source or drain regions of the fifth transistor is connected to
25 the gate electrode of the third transistor and the other is connected to the drain region of the first transistor,
wherein the source regions of the first and second transistors are connected to the power supply line,
wherein the gate electrode of the first transistor is connected to the gate
30 electrode of the second transistor and to the drain region thereof,

wherein the source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode,

wherein the first, second, and third transistors operate in a saturation range, and

5 wherein the amount of drain current of the first transistor is controlled by a video signal in order to control the luminance of the organic light emitting diode.

43. A light emitting device according to claim 42, wherein the forth transistor and the fifth transistor have the same polarity.

10

44. A light emitting device according to claim 42, wherein the first, second, and third transistors have the same polarity.

*Sub
IX
amp.*

45. An electronic equipment comprising the light emitting device according to
15 claim 42, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

20

46. A light emitting device comprising:

a first, second, third, fourth, and fifth transistors, each comprising a source region, a drain region, and a gate electrode;

an organic light emitting diode;

a power supply line;

25

a signal line; and

a scanning line,

wherein the gate electrodes of the fourth and fifth transistors are connected to the scanning line,

30 wherein one of the source or drain regions of the fourth transistor is connected to the signal line and the other is connected to a drain region of the first transistor,

Sub
Comp.

wherein one of the source or drain regions of the fifth transistor is connected to the signal line and the other is connected to the gate electrode of the third transistor,

wherein the source regions of the first and second transistors are connected to the power supply line,

5 wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the drain region thereof;

wherein the source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode,

10 wherein the first, second, and third transistors operate in a saturation range,

wherein the fourth and fifth transistors are turned ON for a certain period in one frame period and the fourth and fifth transistors are turned OFF for a certain period in the same one frame period, and

wherein the amount of current flowing in the signal line is controlled while the
15 fourth and fifth transistors are turned ON in order to control the luminance of the organic light emitting diode.

47. A light emitting device according to claim 46, wherein the forth transistor and the fifth transistor have the same polarity.

20

48. A light emitting device according to claim 46, wherein the first, second, and third transistors have the same polarity.

49. An electronic equipment comprising the light emitting device according to
25 claim 46, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

30 50. A light emitting device comprising:

a first, second, third, fourth, and fifth transistors, each comprising a source region, a drain region, and a gate electrode;

an organic light emitting diode;

power supply line;

52. A light emitting device according to claim 50, wherein the first, second, and third transistors have the same polarity.

5 53. An electronic equipment comprising the light emitting device according to claim 50, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

10

54. A light emitting device comprising:

a first, second, third, fourth, and fifth transistors, each comprising a source region, a drain region, and a gate electrode;

an organic light emitting diode;

15

a power supply line;

a signal line; and

a scanning line,

wherein the gate electrodes of the fourth and fifth transistors are connected to the scanning line,

20

wherein one of the source or drain regions of the fourth transistor is connected to the signal line and the other is connected to the gate electrode of the third transistor,

wherein one of the source or drain regions of the fifth transistor is connected to the gate electrode of the third transistor and the other is connected to the drain region of the first transistor,

25

wherein the source regions of the first and second transistors are connected to the power supply line,

wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the drain region thereof,

30 wherein the source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel

Sub
Comp

2000220-0974007

Sub
21
CMTD.

electrode of the organic light emitting diode,

wherein the first, second, and third transistors operate in a saturation range,

wherein the fourth and fifth transistors are turned ON for a certain period in one frame period and the fourth and fifth transistors are turned OFF for a certain period in the same one frame period, and

wherein the amount of current flowing in the signal line is controlled while the fourth and fifth transistors are turned ON in order to control the luminance of the organic light emitting diode.

10 55. A light emitting device according to claim 54, wherein the forth transistor and the fifth transistor have the same polarity.

56. A light emitting device according to claim 54, wherein the first, second, and third transistors have the same polarity.

15 57. An electronic equipment comprising the light emitting device according to claim 54, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

58. A light emitting device comprising:
a first, second, third, fourth, fifth, and sixth transistors, each comprising a source region, a drain region, and a gate electrode;
25 an organic light emitting diode;
a power supply line;
a signal line;
a first scanning line; and
a second scanning line,
30 wherein the gate electrodes of the fourth and fifth transistors are connected to

2007750-022002

Sub
of
CND

the first scanning line,

wherein one of the source or drain regions of the fourth transistor is connected to the signal line and the other is connected to the drain region of the first transistor,

wherein one of the source or drain regions of the fifth transistor is connected to the signal line and the other is connected to the gate electrode of the third transistor,

wherein the source regions of the first and second transistors are connected to the power supply line,

wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the drain region thereof,

wherein the source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode,

wherein the gate electrode of the sixth transistor is connected to the second scanning line,

wherein one of the source or drain regions of the sixth transistor is connected to the power supply line and the other is connected to the gate electrode of the first transistor, and

wherein the first, second, and third transistors operate in a saturation range.

59. A light emitting device according to claim 58, wherein the forth transistor and the fifth transistor have the same polarity.

60. A light emitting device according to claim 58, wherein the first, second, and third transistors have the same polarity.

61. An electronic equipment comprising the light emitting device according to claim 58, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

*Sub
X1
CND.*

62. A light emitting device comprising:
a first, second, third, fourth, fifth, sixth transistor, each comprising a source
region, a drain region, and a gate electrode;
5 an organic light emitting diode;
a power supply line;
a signal line;
a first scanning line; and
a second scanning line,
10 wherein the gate electrodes of the fourth and fifth transistors are connected to
the first scanning line,
wherein one of the source or drain regions of the fourth transistor is connected
to the signal line and the other is connected to the drain region of the first transistor,
wherein one of the source or drain regions of the fifth transistor is connected to
15 the drain region of the first transistor and the other is connected to the gate electrode of the
third transistor,
wherein the source regions of the first and second transistors are connected to
the power supply line,
wherein the gate electrode of the first transistor is connected to the gate
20 electrode of the second transistor and to the drain region thereof,
wherein the source region of the third transistor is connected to the drain region
of the second transistor and the drain region of the third transistor is connected to a pixel
electrode of the organic light emitting diode,
wherein the gate electrode of the sixth transistor is connected to the second
25 scanning line,
wherein one of source or drain regions of the sixth transistor is connected to the
power supply line and the other is connected to the gate electrode of the first transistor,
wherein the first, second, and third transistors operate in a saturation range, and
wherein the amount of drain current of the first transistor is controlled in order
30 to control the luminance of the organic light emitting diode.

200220-092200T

Sub
Q1
amp

63. A light emitting device according to claim 62, wherein the forth transistor and the fifth transistor have the same polarity.

5 64. A light emitting device according to claim 62, wherein the first, second, and third transistors have the same polarity.

65. An electronic equipment comprising the light emitting device according to claim 62, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

15 66. A light emitting device comprising:
a first, second, third, fourth, fifth, and sixth transistors each comprising a source region, a drain region, and a gate electrode;
an organic light emitting diode;
a power supply line;
a signal line;
20 a first scanning line; and
a second scanning line,
wherein the gate electrodes of the fourth and fifth transistors are connected to the first scanning line,
wherein one of the source or drain regions of the fourth transistor is connected
25 to the signal line and the other is connected to the drain region of the first transistor,
wherein one of the source or drain regions of the fifth transistor is connected to the drain region of the first transistor and the other is connected to the gate electrode of the third transistor,
wherein the source regions of the first and second transistors are connected to
30 the power supply line,

wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the drain region thereof,

wherein the source region of the third transistor is connected to the drain region of the second transistor and the drain region of the third transistor is connected to a pixel
5 electrode of the organic light emitting diode;

wherein the gate electrode of the sixth transistor is connected to the second scanning line,

wherein one of the source or drain regions of the sixth transistor is connected to the power supply line and the other is connected to the gate electrode of the first transistor,

wherein the first, second, and third transistors operate in a saturation range, and
10

wherein the amount of drain current of the first transistor is controlled by a video signal in order to control the luminance of the organic light emitting diode.

67. A light emitting device according to claim 66, wherein the forth transistor
15 and the fifth transistor have the same polarity.

68. A light emitting device according to claim 66, wherein the first, second, and third transistors have the same polarity.

69. An electronic equipment comprising the light emitting device according to
20 claim 66, wherein the electronic equipment is selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone.

25

Sub
2.1
Comp.